

Status of Online Databases

Currently there are 2 online Oracle Databases running on d0online cluster:

1. Production DB, [d0onprd](#), running on [d0olc.fnal.gov](#)
allocated space: 12 Gb
1. Development DB, [d0ondev](#), running on [d0olb.fnal.gov](#)
allocated space: 8 Gb

Both DB operates Oracle server v8.1.7.1 with latest security patch installed

Client support available to D0 online user:

sqlplus, oci(oracle call interface), dcoracle(python),
perl_dbd_oracle(perl), misweb(query web tools)

Applications on online production DB

- Hardware(EPICS) DB (HDB) *S. Krzywdzinski, J.Simmons*
- Run Configuration DB (RUNS) *V. Sirotenko, J.Simmons*
- Luminosity DB (LUM) *M. Begel, J.Simmons*
- Calibration DBs
cal_calib, cft_calib, smt_calib, ... (see *Taka's* talk)

Online development DB: 101 user

If you need an account to start developing DB application
send request to [d0db-support](#) from WWW page
<http://d0db.fnal.gov/d0db/access.html>

Current Status of DB Applications

	RUNS	HDB	LUM
Online DB status	done	done	design
Command UI	done	done	no
GUI status	query, Web	done, Web	no
Transfer to Offline	½ done	n/a	½ done

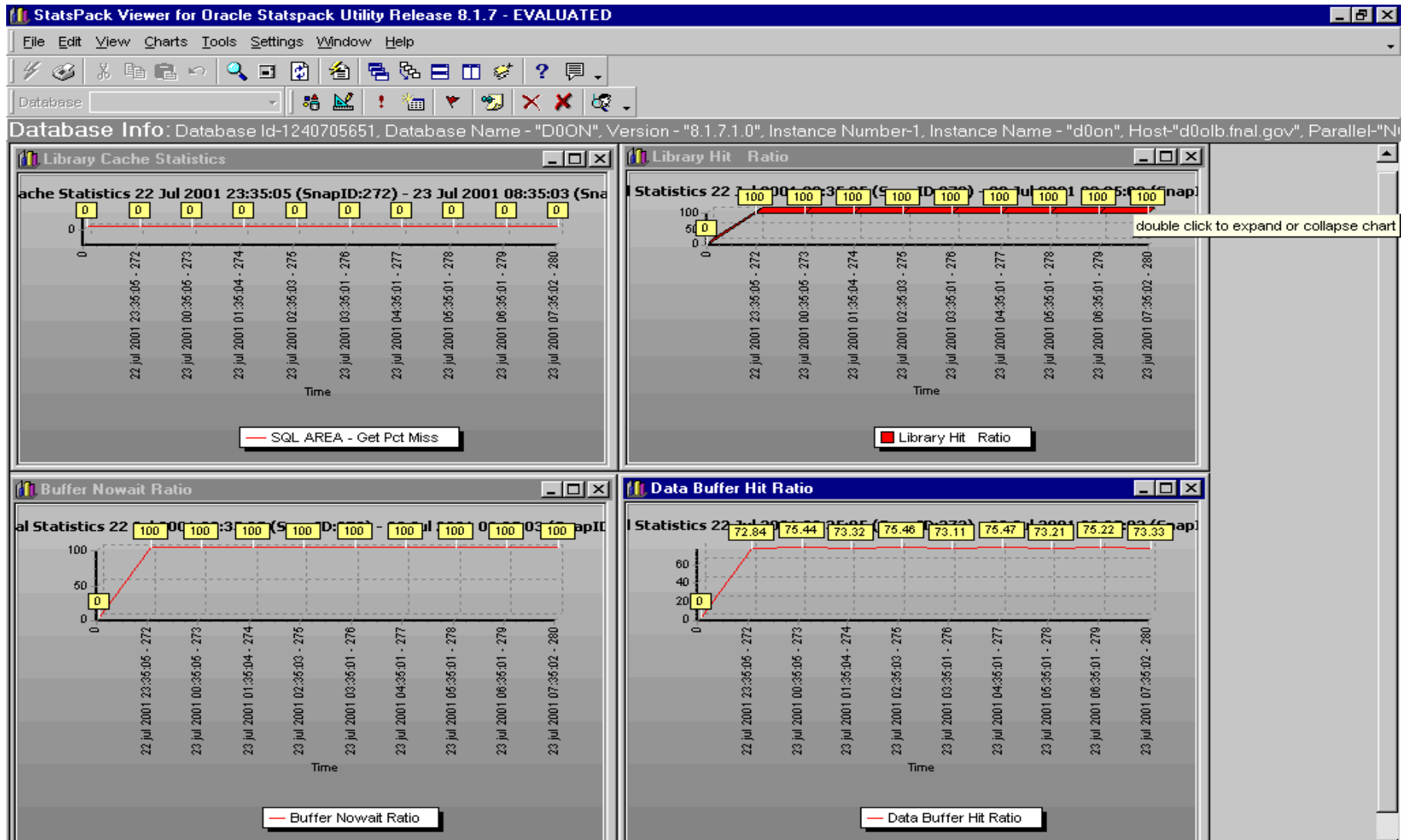
Future DB Developments

1. **Significant Event DB**: will contain the most important Significant Event System messages coming from DAQ
2. **Monitoring DB**: will contain various detector and accelerator parameters taken at different time intervals (5 mins, 15 mins, 30 mins, hour, day and so on) which can be used for future physics analysis.
3. **Others? Electronics DB, Rack DB, ...**

Tools to Monitor Online Databases

- **OEM** (3-tier architecture, servers on odsoem(dev).fnal.gov NT machines)
 - ✓ monitor oracle processes and state of databases
 - ✓ send e-mails if something goes wrong
- **dbMonitor** daemon running on d0olc
 - ✓ communicates with SigEvtSystem (has to be updated)
- **StatsPack Viewer** (2-tier architecture, running on NT)
 - ✓ monitor database status, can send e-mails (not implemented yet)
- **OracleTools**, web based set of SQL scripts
 - ✓ useful to monitor and administer databases
- **KARMA**, web based database monitor display
 - ✓ can be used in control room (?), need tuning

StatsPack Viewer for Oracle (shareware)



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OracleTools, web based (freeware)

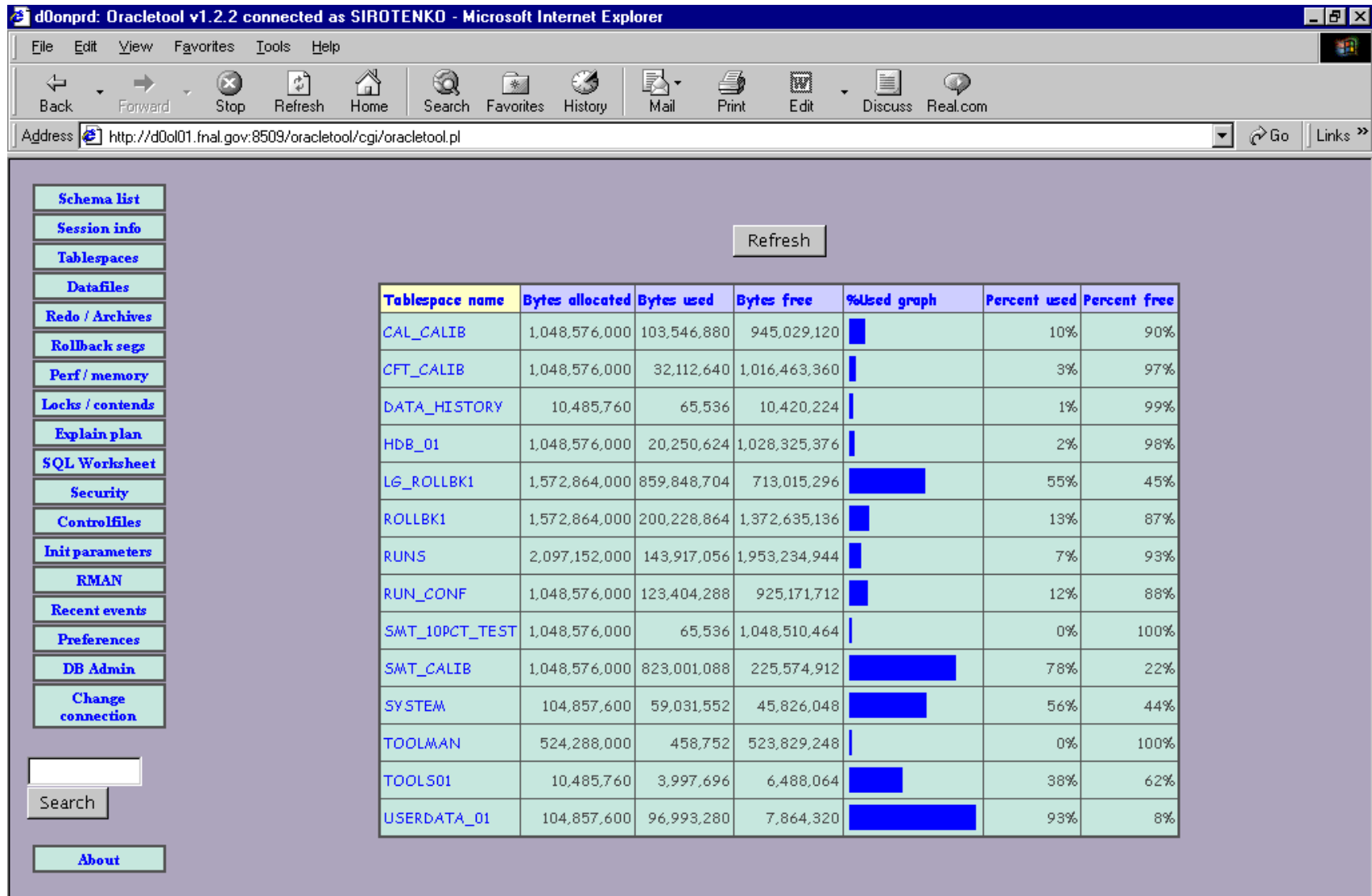
Connected to database : d0onprd
 Oracle8i Enterprise Edition Release 8.1.7.1.0 - Production (DEC Alpha OSF/1, r1.1-8.1.0)
 Instance started on Thursday , July 19, 2001 - 10:13:12

Select a schema by clicking on it.
 Yellow: User is connected. Red: Account locked / expired
 Bold text in parenthesis indicates DBA authority.

Total # users: 49				
(AKUMAR)	BARTLETT	BRSMITH	CAL_CALIB	CFT_CALIB
CFT_ONL	DOREAD	DATA_HISTORY	DBREADER	DBSNMP
DHZHANG	(DIANA)	EXTRACT	FANXL	FBLEKMAN
FOX	(FUESS)	GALLAS	GROER	HDB
(JEREMYS)	JONCKHEERE	KARMA	(KRZYW)	LIPAEV
MACIEJ	NAEEMA	(NELLY)	NEMO	NUNNE
ORACLE_MON	OUTLN	PANLJ	PEYRICLI	PODSTAVKOV
(RMAN_TARGET)	RUNS	RUN_CONF	SAVAGE	(SIROTENKO)
SMT_10PCT_TEST	SMT_CALIB	SMT_CALIBRATION	SPOTLIGHT	STRANG
(SYS)	(SYSTEM)	TOOLMAN	WANGHM	

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OracleTools, continue



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KARMA Oracle Monitor



Karma - Oracle Database Monitor - Microsoft Internet Explorer

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Address <http://d0ol01.fnal.gov:8509/karma/> Go Links >>




**Oracle Monitor**

name	rpert	bsp	up	ssql	hitr	ribk	exts	repq	rdlg	ltch	frag
default											
DQON	●	●	●	●	◆	●	●	●	●	●	◆
DQONPRD	●	●	●	●	●	●	●	●	◆	●	◆

Legend

●	no status
●	ok
◆	warning
◆	alert

Last updated 07/24/2001 11:16 

Internet

RUNS Database Content

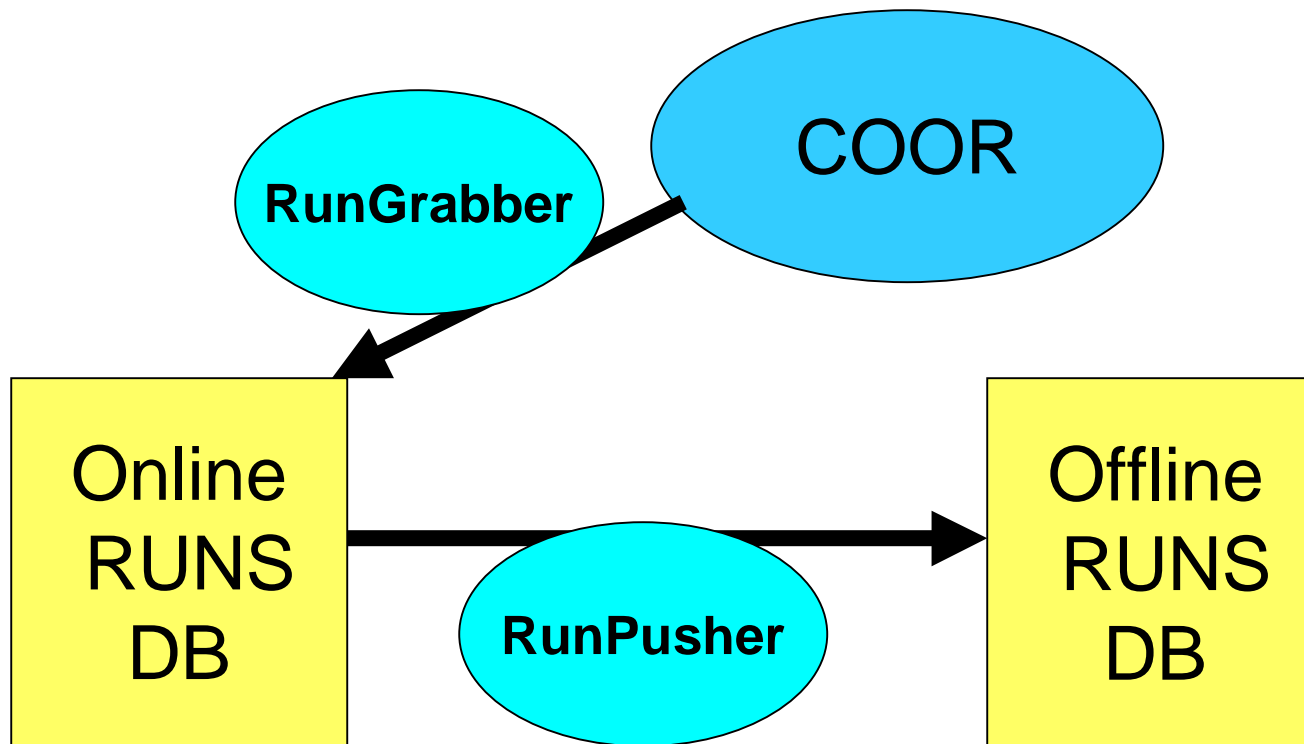
For every run started by COOR the following information is inserted into the DB:

- **run parameters from COOR**: run number, start time, end time, trigger configuration, list of readout crates with attributes, luminosity start/end block numbers, exposure groups information and so on
- **run parameters from EPICS**: toroid and solenoid status, currents and polarity
- **readout crate/modules map**: details of the readout crate configuration and download configuration (not fully implemented, static map)

Latest ER design diagram: look at

http://www-d0ol/run/db_report/modell.htm

RUNS Database Diagram

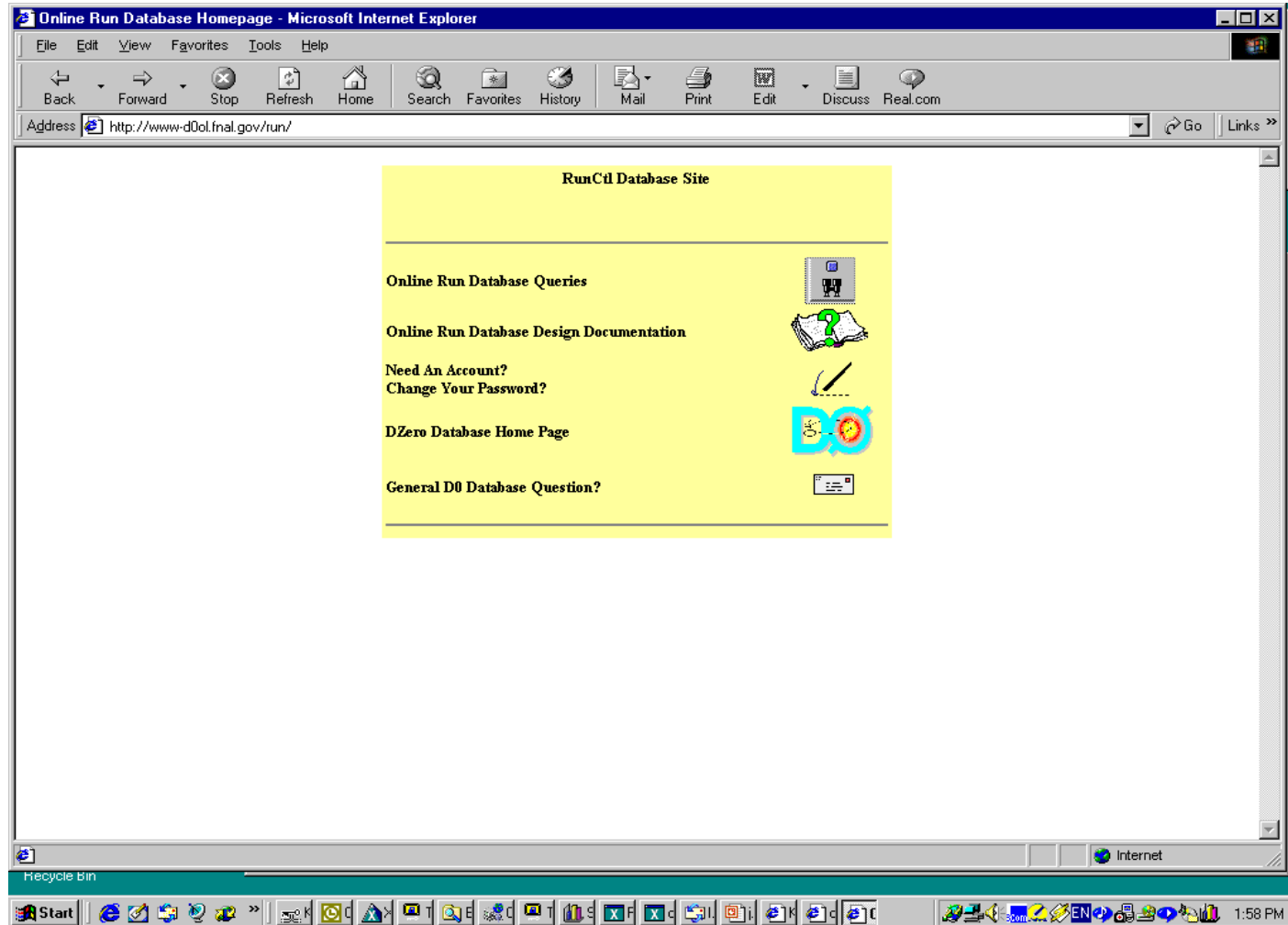


RUNS Database Content (2)

Tablespace allocated:	2 Gb
Current size:	144 Mb (7%)

RUNS table:	18759 rows
RUN_TRIGS table:	72619 rows
RUN_CRATE_ATTS table:	113718 rows
RUN_CONFIGS table:	587683 rows

RUNS Database WWW page



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RUNS Database Query Page

http://www-d0ol.fnal.gov/run/runQuery.html - Microsoft Internet Explorer

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Address http://www-d0ol.fnal.gov/run/runQuery.html# Go Links >>

Run Database Query

NOTE: use % as wildcard, strings are case sensitive

Run Number

Start Time DD-MON-YY

Start Time > DD-MON-YY

Start Time < DD-MON-YY

End Time DD-MON-YY

Trig Config Name

Trig Config Version

Solenoid On Off

Solenoid Polarity

Solenoid Current

Toroid On Off

Toroid Polarity

Toroid Current

Trig Config Type

L3 Type

Prescale Name

Run Type

Store

Shifter Name

Run Comment

Run Database Info and Hints

OVERVIEW:

This page queries the Online Runs Database.

The result of your initial query will produce run details with a button on the run number. This button takes you to the trigger details for that run. On the trigger details page clicking the run number button will give you crate details

RUN DETAILS

|

|-----TRIGGER DETAILS

|

|-----CRATE DETAILS

OTHER QUERIES:

Other Run Database queries (LBN,STREAM,CRATE ATTRIBUTES Etc..) can be found [here](#)

QUERY TIPS:

Query Tips and hints on MISWEB usage can be found [here](#)

COLUMN DESCRIPTIONS:

- **Run Number** - Online run number assign by COOR
- **Start Time** - Time the run started (I.E. 19-JUN-01)
- **Start Time >** - Start Time greater than (NO WILDCARDS MUST BE FULL DATE)
- **Start Time <** - Start Time less than (NO WILDCARDS MUST BE FULL DATE)
- **End Time** - Time the run ended (I.E. 19-JUN-01)
- **Trig Config Name** - Name of the trigger config file
- **Trig Config Version** - Version number of the trigger config file
- **Solenoid On Off** - Was the solenoid on or off

RUNS Database Query Page (2)

D0 Online Query Interface - Microsoft Internet Explorer

Address: <http://www-d0ol.fnal.gov/misweb/cgi/misweb.pl>

D0 Online Web Query Interface

Run Database Query

Run_Number	Start_Time_CST	End_Time_CST	Trg_Cfg_Name	TrgV	SoLON	SoLP	SoLI	TorON	TorP	TorI	EP_Sample_Time_CST	Store	Run_Type	Run_C
126445	2001 JUL 24 21:45:03	2001 JUL 24 21:50:52	commissioning/l1muo/l1mutrg-allmuon-test	1.0	0.0	1.0	-2.1875	0.0	0.0	-2344	2001 JUL 24 21:45:03		Test	
126444	2001 JUL 24 21:26:43	2001 JUL 25 01:04:24	commissioning/tracking/zero-bias-smt-0x67-sr	1.0	0.0	1.0	-2.1875	0.0	0.0	-2344	2001 JUL 24 21:26:47		Test	
126443	2001 JUL 24 21:07:57	2001 JUL 24 21:19:40	commissioning/cal/zero_bias_cal_only	1.1	0.0	1.0	-2.1875	0.0	0.0	-2344	2001 JUL 24 21:08:00		Test	
126442	2001 JUL 24 21:01:40	2001 JUL 24 21:06:47	commissioning/cal/zero_bias_cal_only	1.1	0.0	1.0	-2.1875	0.0	0.0	-2344	2001 JUL 24 21:01:42		Test	
126441	2001 JUL 24 19:04:36	2001 JUL 24 19:07:05	calibration/cft/calib-cft-0x50-SCL	1.0	0.0	1.0	-2.1875	0.0	0.0	-2344	2001 JUL 24 19:04:37		Physics	
126440	2001 JUL 24 19:03:58		l2tests/l2test	1.1	0.0	1.0	-2.1875	0.0	0.0	-2344	2001 JUL 24 19:04:01		Test	
126439	2001 JUL 24 18:58:27	2001 JUL 24 19:16:35	calibration/smt/calib-smt-0x66-SCL	1.1	0.0	1.0	-2.1875	0.0	0.0	-2344	2001 JUL 24 18:58:30		Calibration	calibrat gains
126438	2001 JUL 24 18:17:09	2001 JUL 24 19:03:32	l2tests/l2test_10hz	1.1	0.0	1.0	-2.1875	0.0	0.0	-2344	2001 JUL 24 18:17:09		Test	
126437	2001 JUL 24 17:34:00	2001 JUL 24 18:56:06	calibration/smt/calib-smt-0x66-SCL	1.1	0.0	1.0	-2.1875	0.0	0.0	-2344	2001 JUL 24 17:34:03		Test	test sd
126436	2001 JUL 24 17:29:55	2001 JUL 24 18:05:41	l2tests/l2test	1.1	0.0	1.0	-2.1875	0.0	0.0	-2344	2001 JUL 24 17:30:00		Test	

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RUNS Database Query Page (3)

D0 Online Query Interface - Microsoft Internet Explorer

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Address <http://www.d0ol.fnl.gov/misweb/cgi/misweb.pl> Go Links

D0 Online Web Query Interface

Per Run Trigger Details

for Run_Number: 126445

Run_Number	Trg_Type	Bit_Num	Depend_Bit	Bit_Name	Eg_Num	Prescale
126445	L1bit	4		bot	4	47000
126445	L1bit	5		l1muoACc		300
	L1bit	6		l1muoABn		1000
	L1bit	7		l1muoABs		1000
	L2bit	4	4	TRIG_L2bit0		
	L2bit	5	5	TRIG_L2bit1		
	L2bit	6	6	TRIG_L2bit2		
	L2bit	7	7	TRIG_L2bit3		
	L3bit	3	4	l3bit0		
	L3bit	4	5	l3bit1		
	L3bit	5	6	l3bit2		
	L3bit	6	7	l3bit3		

Rows 1 to 12 of the Total 12 found.

Back to: [Starting Query Page](#) or [Edit](#) the SQL query that produced this page.

For help contact miscomp@fnal.gov [D0 Online MISWEB Home Page](#)

RUNS Database Query Page (4)

D0 Online Query Interface - Microsoft Internet Explorer

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Address <http://www-d0ol.fnal.gov/misweb/cgi/misweb.pl> Go Links »

D0 Online Web Query Interface

Per Run Crate Details

for Run_Number: 126445

Run_Number	Crate_Name	Crate_Dec	Eg_Num
126445	FMSS	50	4
	FMNS	51	4
	L1MUN	23	4
	L1MTM	25	4
	TRGFR	31	4
	L3WAKEUP	127	

Rows 1 to 6 of the Total 6 found.

Back to: [Starting Query Page](#) or [Edit](#) the SQL query that produced this page.

For help contact miscomp@fnal.gov [D0 Online MISWEB Home Page](#)

MISWEB Query Interface

RUNS Database Query Page (5)

Online Runs Database Query Page - Microsoft Internet Explorer

Address: <http://www-d0ol.fnal.gov/run/otherQueries.html>

Comics Run Type

Run Type
Store
Shifter Name
Run Comment
Export Status

Run Range Database Query
NOTE: use % as wildcard, strings are case sensitive

Run Number
Start Time > DD-MON-YY
Start Time < DD-MON-YY
Export Status

Run LBN Database Query
NOTE: use % as wildcard, strings are case sensitive

Run Number
LBN
FLAG

Run Crate Attributes Database Query
NOTE: use % as wildcard, strings are case sensitive

Run Number
Crate Name
Attribute Name
Attribute Value

Run Exposure Group Database Query
NOTE: use % as wildcard, strings are case sensitive

Run Number
Exposure Group Number
Exposure Group Name

Run Stream Database Query
NOTE: use % as wildcard, strings are case sensitive

Run Number
Stream Name

Run Trigger Database Query
NOTE: use % as wildcard, strings are case sensitive

Run Number
Trigger Type
Bit Number
Dependant Bit
Bit Name
Exposure Group Number
Prescale

Run Crates Database Query
NOTE: use % as wildcard, strings are case sensitive

Run Number
Crate Name
Crate Decimal
Exposure Group
Attributes

Run Crate Attributes Database Query

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Hardware (EPICS) DB

The EPICS Database serves as a **repository** of the following objects:

- EPICS record types, as given by the **.dbd** files
- EPICS templates, as given by **.dbt** files
- EPICS generators, as given by **.dbg** files
- instances of EPICS records, contained in **.db** files which are downloaded into front-end nodes (IOC)

EPICS records are stored related to all IOC's used at D0, and also could be grouped into devices, e.g. an entire power supply. The devices in turn, and thus their records, could be further grouped according to categories: **detector type, device type, templates, front-end node, location**

For tutorial on HDB look at

[\\D0SERVER4\projects\Online Computing\Tutorials\HdbTutorial.ppt](#)

Hardware (EPICS) DB (2)

Tablespace allocated:

1 Gb

Current size:

20 Mb (2%)

Tables

Count as of 7/24/01

ALARMS	1
DEFAULTS	1648
DETECTORS	30
DEVICES	3919
DEVICE_TYPES	71
EPICS_DEFINITIONS	1983
GENERATORS	31338
LOCATORS	259
NODES	64
PARAMETERS	616
TEMPLATE_IDS	108
TEMPL_FIELDS	18687
TEMPL_RECORDS	1884
Views	
DEV_INSTANCES	623123

Hardware (EPICS) DB (3)

Custom utilities were created, to enter, maintain and extract the data from the EPICS Database:

- **hdbWeb:** interactive-type Web-based GUI
- **hdbBatch:** batch-type Python scripts

Oracle account (username/password) to the D0 Production Database, d0onprd, with either **hdb_operator**, or **hdb_administrator** role granted, is needed in order to use these utilities.

Oracle Enterprise Manager, a powerful GUI interface available on NT and Unix, allows a DBA to do almost anything to a database, including manipulation of database definitions and data in tables.

One can always resort to **SQL*Plus** ...

HDB WWW Page

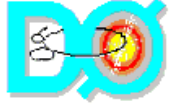




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HDB Web GUI


D0 webHDB v4.0 - Microsoft Internet Explorer

Navigation icons: back, home, forward

  **EPICS** 

User: sirotenko


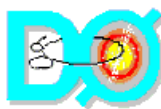


MAIN MENU ?	
Add Device (Templated) ?	Add Device (Custom) ?
Edit Existing Template ?	Template Name <input type="text"/> <small>LIST</small>
Edit Existing Device ?	Device Name <input type="text"/> <small>LIST</small>
Delete Existing Device ?	Device Name <input type="text"/> <small>LIST</small>
Clone Existing Device ?	Device Name <input type="text"/> <small>LIST</small>
View Existing Device ?	Device Name <input type="text" value="CTL_RMI_NW"/> <small>LIST</small>
Find Existing Device ?	

 Dzzero Hardware DB Interface

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HDB Web GUI (2)

D0 webHDB v4.0 - Microsoft Internet Explorer

    User: sirotenko

Device Name: CTL_RMI_NW
Detector Type: CTL
Device Type: RMI
Locator Id: AAAANULL
Node Name: d0o1ct140
Description: None

```
record(bi,"CTL_RMI_NW/AIR")
{
  field(DESC, "NW RMI Air Flow Status")
  field(DTYP, "Raw Soft Channel")
  field(INP, "CTL_RMI_NW/STAT.B7 NPP MS")
  field(ZNAM, "OK")
  field(ONAM, "Tripped")
  field(OSV, "MAJOR")
  field(SCAN, "Passive")
}
record(bi,"CTL_RMI_NW/DRIP")
{
  field(DESC, "NW RMI Drip Status")
  field(DTYP, "Raw Soft Channel")
  field(INP, "CTL_RMI_NW/STAT.B6 NPP MS")
  field(ZNAM, "OK")
  field(ONAM, "Tripped")
  field(OSV, "MAJOR")
  field(SCAN, "Passive")
}
record(bi,"CTL_RMI_NW/SMOKE")
{
  field(DESC, "NW RMI Smoke Status")
  field(DTYP, "Raw Soft Channel")
  field(INP, "CTL_RMI_NW/STAT.B4 NPP MS")
  field(ZNAM, "OK")
  field(ONAM, "Tripped")
  field(OSV, "MAJOR")
  field(SCAN, "Passive")
}
```

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LUMinosity DB Status

➤ *From Jeremy's report on 7/26/2001:*

- Design of Db Schema still 95%
 - Missing L3 Script Runner
- Online to Offline transfer
 - Design and Coding complete, command line based prototype available
- ImReader v1 complete : reads in LmBlock files, can be use of batch loading and testing, need better error handling, 4.5 sec to load one LmBlock
- ImDbAccess package v1 complete
- Gregor Geurkov : interfacing ImServer to ImDbAccess